HILTI

PD 5

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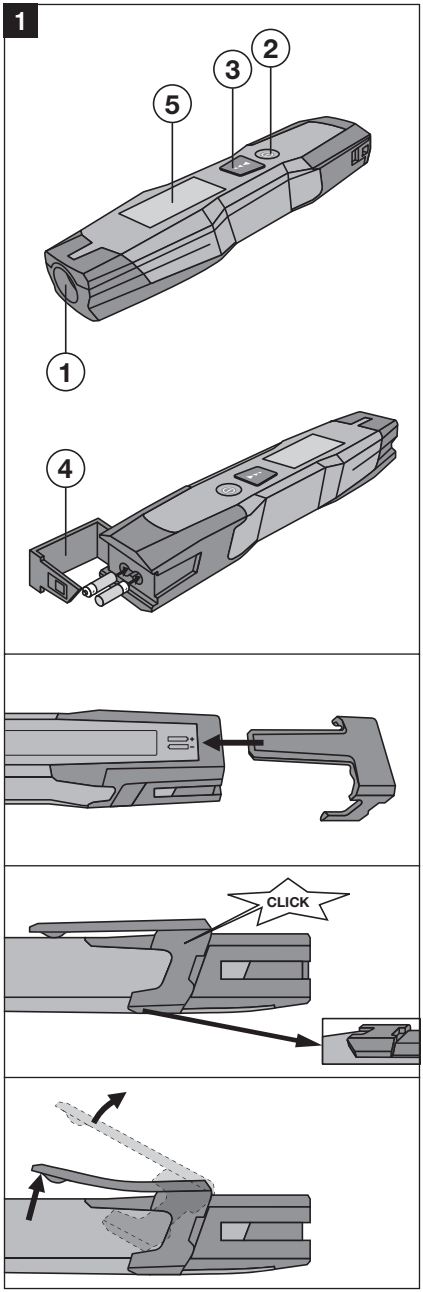

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ORIGINAL OPERATING INSTRUCTIONS

PD 5 laser range meter

It is essential that the operating instructions are read before the laser range meter is used the first time.

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Ensure that the operating instructions are with the laser range meter when it is given to other persons.

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1 These numbers refer to the corresponding illustrations. The illustrations can be found on the fold-out cover pages. Keep these pages open while studying the operating instructions.
In these operating instructions, the designation "the tool" always refers to the PD 5 laser range meter.

Parts, operating controls and indicators 1
① Laser emitting and receiving lens
② On/off button
③ Measure button
④ Battery compartment cover
⑤ Graphic display

1. General information

1.1 Safety Notices and their meaning

-CAUTION-
This word indicates a possibly hazardous situation which could result in slight bodily injuries or damage to property.

-NOTE-
This word indicates information to help the user employ the product efficiently and other useful notes.

1.2 Explanation of the pictograms and other information

Warning signs

General warning

Symbols

Laser class II according to CFR 21, § 1040 (FDA)

Symbols

Read the operating instructions before use.

Temperature indicator

Do not look into the beam.

Laser class 2

Return waste material for recycling.

Battery status indicator

Hardware errors

Unfavorable operating conditions

KCC-REM-HLT-PD5

1.3 Location of identification data on the range meter

The type designation and serial number can be found on the rating plate on the back side of the range meter. Make a note of this data in your operating instructions and always refer to it when making an enquiry to your Hilti representative or service department.

Type:

Serial no.:

2. Description

2.1 Intended use

The range meter is designed for the:
- Measurement of distances

2.2 Display

The measurements, settings and tool status are shown in the display. When the tool is in measuring mode, the measurements taken are shown at the bottom of the display area (the result line).

2.3 Display illumination

In low light conditions, the display is illuminated automatically as soon as a button is pressed. If no button is pressed over a period of 20 seconds, the display illumination switches off automatically.

2.4 Basic principle

The distance is measured along a laser beam emitted by the tool to the point at which the beam strikes a reflective surface. The target from which the measurement is taken is clearly identified by the red laser measuring spot. The range of the tool depends on the reflectance and structure of the target surface from which measurements are taken.

2.5 Control panel

On/off button	When the tool is switched off, press the button briefly to switch it on.
	When the tool is switched off, press and hold the button to activate the menu.
	When the tool is switched on, press the button briefly to switch it off.
Measure button	Quick start (When the tool is switched off: Press the button briefly - the tool switches on and activates the laser).
	Begins distance measurement.
	Activates the laser beam.
	Activates continuous measuring mode (long press, approx. 2 sec.).
	Stops continuous measuring mode.

2.6 Items supplied

1 PD 5 laser range meter
2 Batteries
1 Soft pouch
1 Operating instructions
1 Manufacturer's certificate

3. Accessories

Not supplied with the tool.

Target plate	PDA 50 with reflective coating (120×130 mm)
	PDA 51 (120×130 mm)
	PDA 52 with reflective coating (210×297 mm)
Laser visibility glasses	PUA 60

4. Technical data

Right of technical changes reserved.

Power supply
2×1.5 V, type AAA batteries

Battery condition check
Battery condition indicator with 4 segments showing 100%, 75%, 50%, 25% charge :
No segments shown: The batteries are exhausted

Measuring range (with target plate)
0.25 … 100 m

Accuracy
Typically ±1.5 mm for single and continuous measurement * *

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* * Atmospheric influences interfere with distance measurements. Over long distances, an influence of ± 1.5 mm + 20 ppm of the measured distance is to be expected. Typical accuracy: 2 Sigma at 25 ºC.

Basic operating modes
Single measurement / Continuous measurement

Display
Illuminated liquid-crystal display showing distance, operating and battery status

Laser class
Visible 635 nm, Output power less than 1 mW:
Laser class 2
EN 60825-1:2007; IEC 60825-1:2007 CFR 21 § 1040 (FDA)

Automatic cut-out
Laser: 1 min / Tool: 10 min

Battery life
Up to 5000 measurements at room temperature

Operating temperature range
- 10°C…+ 50°C

Storage temperature
- 30°C…+ 70°C

Protection class
IP 55 protection against dust and water jets IEC 60529

Weight with batteries
100 g

Dimensions
164 (L) × 33 (W) × 21 (H) mm

5. Safety instructions

In addition to the information relevant to safety given in each of the sections of these operating instructions, the following points must be strictly observed at all times.

5.1 Basic information concerning safety

a) **Do not render safety devices ineffective and do not remove information and warning notices.**
b) **Keep laser tools out of reach of children.**
c) Failure to follow the correct procedures when opening the tool may cause emission of laser radiation in excess of class 2. **Have the tool repaired only at a Hilti service center.**
d) **Modification of the tool is not permissible.**
e) **Check that the tool functions correctly each time before use.**
f) Measurements taken from surfaces with low reflectivity in highly reflective surroundings may be inaccurate.
g) Measurements taken through panes of glass or other objects may be inaccurate.

h) Rapidly changing conditions, e.g. persons walking through the path of the laser beam, falling snow, etc., may lead to incorrect measurements.
i) **Do not point the tool toward the sun or other powerful light sources.**
j) **Take the influences of the surrounding area into account. Do not use the tool where there is a risk of fire or explosion.**

5.2 Proper organization of the workplace

a) **Avoid unfavorable body positions when working from ladders. Make sure you work from a safe stance and stay in balance at all times.**
b) **When the tool is brought into a warm environment from very cold conditions, or vice-versa, allow it to become acclimatized before use.**
c) **As a precaution, check the previous settings and adjustments you have made.**
d) **Secure the area in which you are working and take care to avoid directing the beam towards other persons or towards yourself when setting up the tool.**
e) **Use the tool only within its specified limits.**
f) **Observe the accident prevention regulations applicable in your country.**

5.3 Electromagnetic compatibility

Although the tool complies with the strict requirements of the applicable directives, Hilti cannot entirely rule out the possibility of the tool being subject to interference caused by powerful electromagnetic radiation, leading to incorrect operation. Check the accuracy of the tool by taking measurements by other means when working under such conditions or if you are unsure. Likewise, Hilti cannot rule out the possibility of interference with other devices (e.g. aircraft navigation equipment). The tool complies with the requirements of class A; The possibility of interference occurring in a domestic environment cannot be excluded.

5.4 General safety rules

a) **Check the condition of the tool before use. If the tool is found to be damaged, have it repaired at a Hilti service center.**
b) **The user must check the accuracy of the tool after it has been dropped or subjected to other mechanical stresses.**
c) **Although the tool is designed for the tough conditions of jobsite use, as with other measuring instruments it should be treated with care.**
d) **Although the tool is protected to prevent entry of dampness, it should be wiped dry each time before being put away in its transport container.**

5.5 Electrical

a) **Keep the batteries out of reach of children.**
b) **Do not allow the batteries to overheat and do not expose them to fire.** The batteries may explode or release toxic substances.
c) **Do not charge the batteries.**

d) **Do not solder the batteries into the tool.**
e) **Do not discharge the batteries by shortcircuiting.** This may cause them to overheat and present a risk of personal injury (burns).
f) **Do not attempt to open the batteries and do not subject them to excessive mechanical stress.**
g) Do not use carbon-zinc batteries in the tool.

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5.6 Laser classification

Depending on the version purchased, the tool complies with Laser Class 2 in accordance with IEC825-1:2007 / EN60825-1:2007 and Class II in accordance with CFR 21 § 1040 (FDA). This tool may be used without need for further protective measures. The eyelid closure reflex protects the eyes when a person looks into the beam unintentionally for a brief moment. This eyelid closure reflex, however, may be negatively affected by medicines, alcohol or drugs. Nevertheless, as with the sun, one should not look directly into sources of bright light. Do not direct the laser beam toward persons.

5.7 Transport

Always remove the batteries before shipping the tool.

6. Before use

6.1 Inserting the batteries

CAUTION
Do not use damaged batteries.

CAUTION
Always replace the complete set of batteries.

DANGER
Do not mix old and new batteries. Do not mix batteries of different makes or types.

1. Open the battery compartment.
2. Remove the batteries from the packaging and insert them in the tool.
   NOTE Check to ensure correct battery polarity (refer to the markings on the underside of the tool).
3. Close the battery compartment cover.
4. Check to ensure that the battery compartment cover is closed securely.

6.2 Switching the tool on / off

1. The tool can be switched on by pressing either the “On / off” button or the “Measure” button.
2. When the tool is switched off, press the “On / off” button: The tool switches on.
   The laser beam is switched off.

3. When the tool is switched on, press the “On / off” button: The tool switches off.
4. When the tool is switched off, press the “Measure” button: The tool and the laser beam switch on.

6.3 First distance measurements

1. Press the “Measure” button once.
   If switched off, the tool will be switched on and the laser beam activated.
   If the tool is already switched on, the laser beam will be activated.
2. Aim the tool by positioning the visible laser spot on a white surface at a distance of approx. 3 - 10 m.
3. Press the “Measure” button again.
   The distance will be displayed in less than a second, e.g. 5.489 m.
   You have just taken your first measurement with the tool.

6.4 Settings menu

1. With the tool switched off, press the “On / off” button for approx. 2 seconds to enter menu mode.
2. Press the "Measure" button to switch the beep signal on or off.
3. Press the "On / off" button to access the measuring units settings.
4. Press the "Measure" button repeatedly to scroll through the choice of units.
5. To close the menu, press and hold the "On / off" button for approx. 2 seconds.

The tool is switched off and all the settings shown will be saved.

6.5 Measuring references

All measurements taken with the PD 5 have the bottom end of the tool as the default reference setting.

6.6 Measuring distances

Distances can be measured from all stationary targets without a highly reflective surface, i.e. concrete, stone, wood, plastic, paper, etc. The use of prisms or other highly reflective targets is not permissible and, if attempted, may falsify the results.

7. Operation

7.1 Distance measurements

NOTE

With all functions of the tool, each step in the operation is always indicated in the display.

NOTE
If measuring errors occur during continuous measuring, and continuous measuring mode is canceled by pressing the “Measure” button again, the last valid measurement will be displayed.

7.2 Single distance measurement

1. Switch on the laser beam by pressing the “Measure” key.
2. Press the “Measure” key once again. Generally, the measured distance will be completed in less than a second and shown in the result line on the display.

7.3 Continuous measurement

Press the “Measure” key for 2 seconds to activate this measuring mode.
When doing so, it does not matter whether or not the range meter is off or the laser beam is switched on or off. The range meter will always switch to continuous measurement.
During continuous measurement, the distances are updated in the result line by about 8 to 15 measurements every second. This depends on the reflectivity of the target surface.
Continuous measurement is indicated by a Beep. The measuring process is stopped by pressing the "Measure" key once again. On doing so, the last valid distance measurement shows in the result line on the display.

8. Care and maintenance

8.1 Cleaning and drying

1. Blow dust off the lens.
2. Do not touch the lens with the fingers.
3. Use only a clean, soft cloth for cleaning. If necessary, moisten the cloth slightly with pure alcohol or a little water. **NOTE** Do not use any other liquids as these may damage the plastic components.
4. The temperature limits for storage of your equipment must be observed, especially in winter / summer.

8.2 Storage

Remove the tool from its case if it has become wet. The tool, its carrying case and accessories should be cleaned and dried (at maximum 40°C). Repack the equipment only once it is completely dry.
Check the accuracy of the equipment before it is used after a long period of storage or transportation.
Remove the batteries from the tool before storing it for a long period. Leaking batteries may damage the tool.

8.3 Transport

Use the original packaging or packaging of equivalent quality for transporting or shipping your equipment.

CAUTION
Always remove the batteries before shipping the tool.

8.4 Calibration and adjustment

8.4.1 Calibration

Monitoring of measuring equipment for users certified in accordance with ISO 900X: As specified in ISO 900X, you may carry out the inspection and testing of the PD 5 laser range meter yourself (see ISO 17123-4: Field procedures for testing geodetic and surveying instruments: Part 4, Electro-optical distance meters).

1. Select a readily accessible measuring distance of a known length (approx. 1 to 5 meters / 3 to 15 feet) which does not change over time and measure the same distance 10 times.
2. Determine the mean deviation from the known distance. This value should be within the specified accuracy tolerance for the tool.
3. Keep a record of this value and note the date when the next test is due.
   Repeat this test at regular intervals as well as before and after important measuring tasks.
   Apply a test and inspection confirmation sticker to the PD 5 and keep a record of the entire monitoring, test and inspection procedure and the results.
   Please refer to the technical data contained in the operating instructions and the information concerning measuring accuracy.

8.4.2 Adjustment

To ensure that the laser range meter is adjusted correctly, we recommend that it is returned to a Hilti Service Center for calibration. Accurate adjustment of the tool will be confirmed by a calibration certificate.

8.4.3 Hilti calibration service

We recommend that the tool is checked by the Hilti calibration service at regular intervals in order to verify its reliability in accordance with standards and legal requirements.
Use can be made of the Hilti calibration service at any time, but checking at least once a year is recommended.
The calibration service provides confirmation that the tool is in conformance, on the day it is tested, with the specifications given in the operating instructions. The tool will be readjusted if deviations from the manufacturer's specification are found. After checking and adjustment, a calibration sticker applied to the tool and a calibration certificate provide written verification that the tool operates in accordance with the manufacturer's specification.
Calibration certificates are always required by companies certified according to ISO 900x.
Your local Hilti Center or representative will be pleased to provide further information.

9. Troubleshooting

Fault	Possible cause	Remedy
1. The tool can't be switched on.	1.1 The batteries are exhausted.	1.1 Replace the batteries.
	1.2 Incorrect battery polarity.	1.2 Insert the batteries correctly and close the battery compartment cover.
	1.3 The button is faulty.	1.3 Return the tool to Hilti for repair.
2. No distances displayed by the tool.	2.1 "Measure" button was not pressed.	2.1 Press the "Measure" button.
	2.2 Faulty display.	2.2 Return the tool to Hilti for repair.
3. Frequent error messages or the tool doesn't measure.	3.1 The target surface is too brightly lit by the sun.	3.1 Measure from the other direction – sun from behind.
	3.2 The target surface is too shiny.	3.2 Take measurements from less shiny surfaces.
	3.3 The target surface is too dark.	3.3 Use the PDA 50 / PDA 51 / PDA 52 target plate.
	3.4 Bright sunlight towards the tool.	3.4 Use the PDA 50 / PDA 51 / PDA 52 target plate.
4. Temperature indicator - symbol in the display	4.1 Temperature too high (>+50 °C)	4.1 Allow the tool to cool down.
	4.2 Temperature too low (<-10 °C)	4.2 Allow the tool to warm up.
5. Unfavorable signal conditions - symbol in the display	5.1 Insufficient reflected laser light.	5.1 Observe the minimum measuring distance (>250 mm from the front edge of the tool); clean the lenses; take the measurement from a different surface or use a target plate.
6. General hardware fault - symbol in the display	6.1 Hardware fault	6.1 Switch the tool off and on again. If the fault persists, contact Hilti Service.

10. Disposal

WARNING
Improper disposal of the equipment may have serious consequences:
The burning of plastic components generates toxic fumes which may present a health hazard.
Batteries may explode if damaged or exposed to very high temperatures, causing poisoning, burns, acid burns or environmental pollution.
Careless disposal may permit unauthorized and improper use of the equipment. This may result in seriou personal injury, injury to third parties and pollution of the environment.

Most of the materials from which Hilti tools or appliances are manufactured can be recycled. The materials must be correctly separated before they can be recycled. In many countries, Hilti has already made arrangements for taking back old tools and appliances for recycling. Ask Hilti customer service or your Hilti representative for further information.

For EC countries only
Do not dispose of electrical appliances together with household waste.
In observance of European Directive on waste electrical and electronic equipment and its implementation in accordance with national law, electric tools that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

Dispose of the batteries in accordance with national regulations.

11. Manufacturer's warranty – tools

Hilti warrants that the tool supplied is free of defects in material and workmanship. This warranty is valid so long as the tool is operated and handled correctly, cleaned and serviced properly and in accordance with the Hilti Operating Instructions, and the technical system is maintained. This means that only original Hilti consumables, components and spare parts may be used in the tool.

This warranty provides the free-of-charge repair or replacement of defective parts only over the entire lifespan of the

tool. Parts requiring repair or replacement as a result of normal wear and tear are not covered by this warranty.

Additional claims are excluded, unless stringent national rules prohibit such exclusion. In particular, Hilti is not obligated for direct, indirect, incidental or consequential damages, losses or expenses in connection with, or by reason of, the use of, or inability to use the tool for any purpose. Implied warranties of merchantability or fitness for a particular purpose are specifically excluded.

For repair or replacement, send tool or related parts immediately upon discovery of the defect to the address of the local Hilti marketing organization provided.

This constitutes Hilti's entire obligation with regard to warranty and supersedes all prior or contemporaneous comments and oral or written agreements concerning warranties.

12. EC conformity (original)

Designation:	Laser range meter
Type:	PD 5
Year of design:	2010

We declare, on our sole responsibility, that this product complies with the following directives and standards: EN ISO 12100, 2011/65/EU, 2004/108/EC, 2006/95/EU.

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